

FIG.1

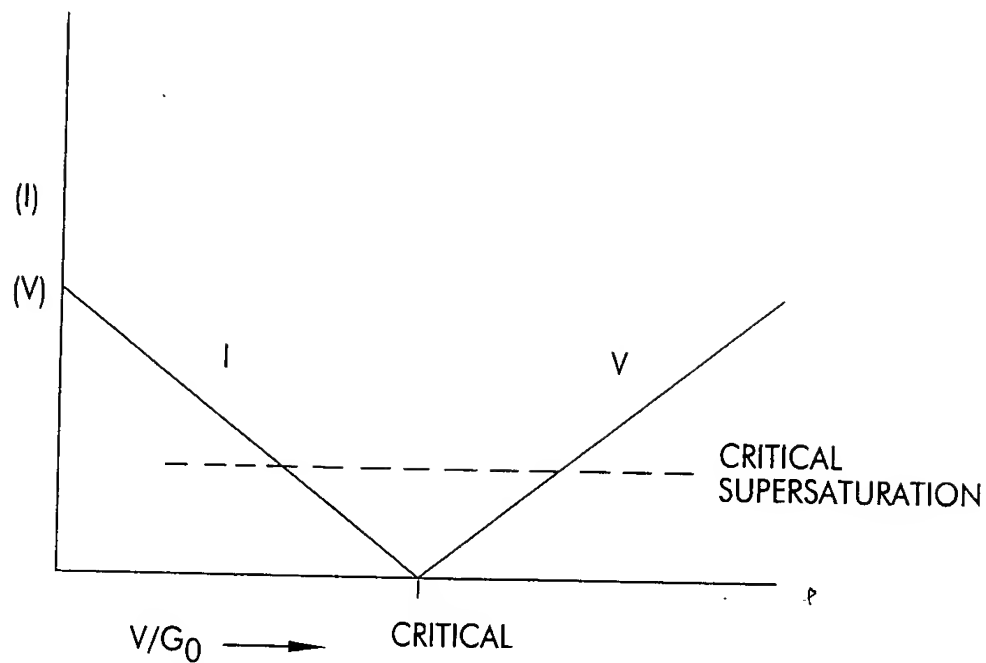
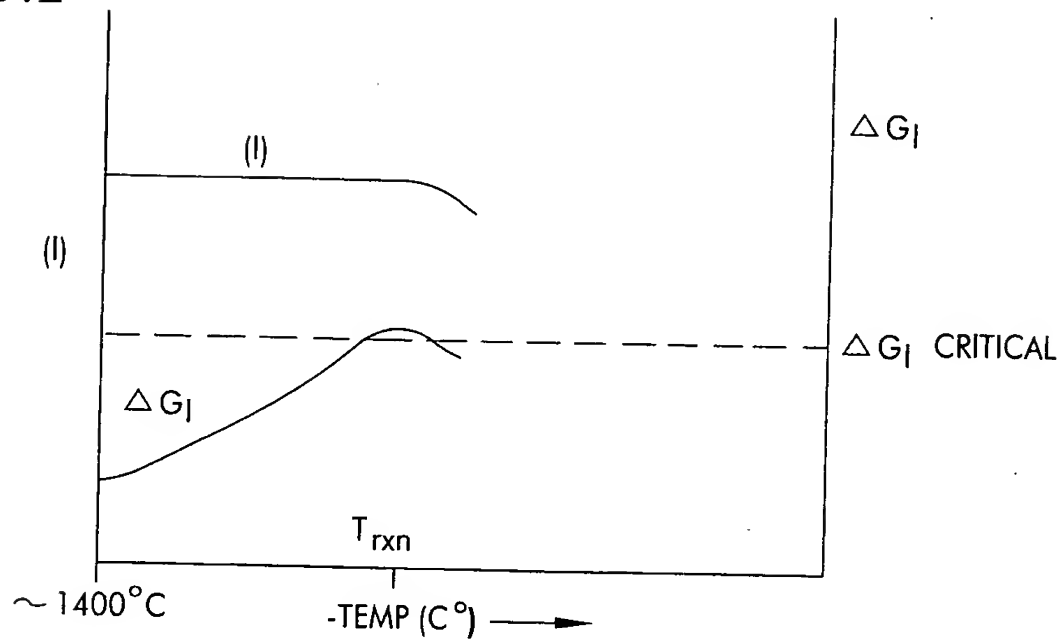


FIG.2



10073505-021102

FIG.3

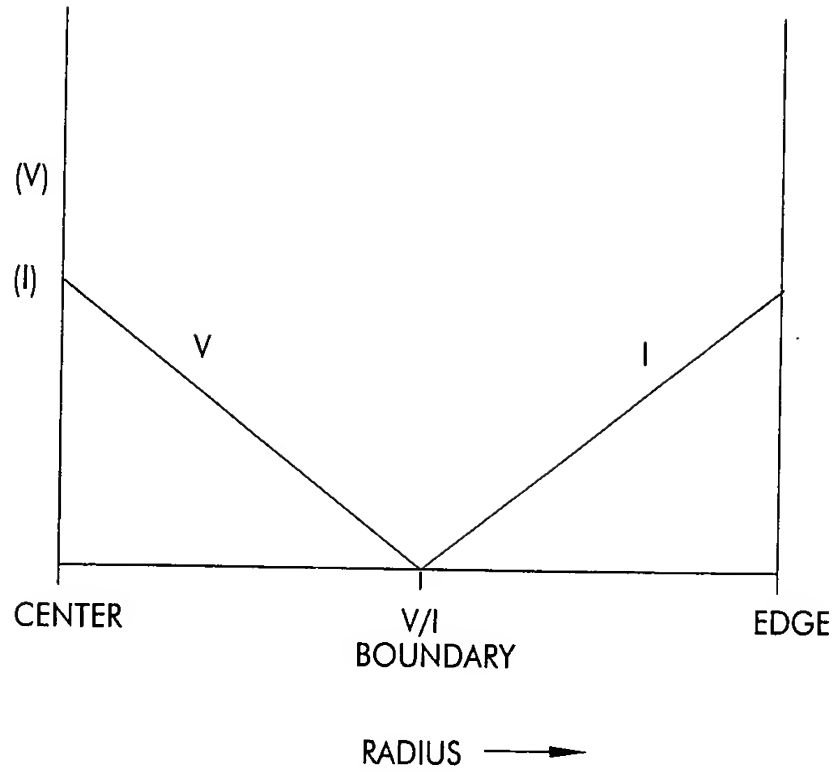


FIG.4

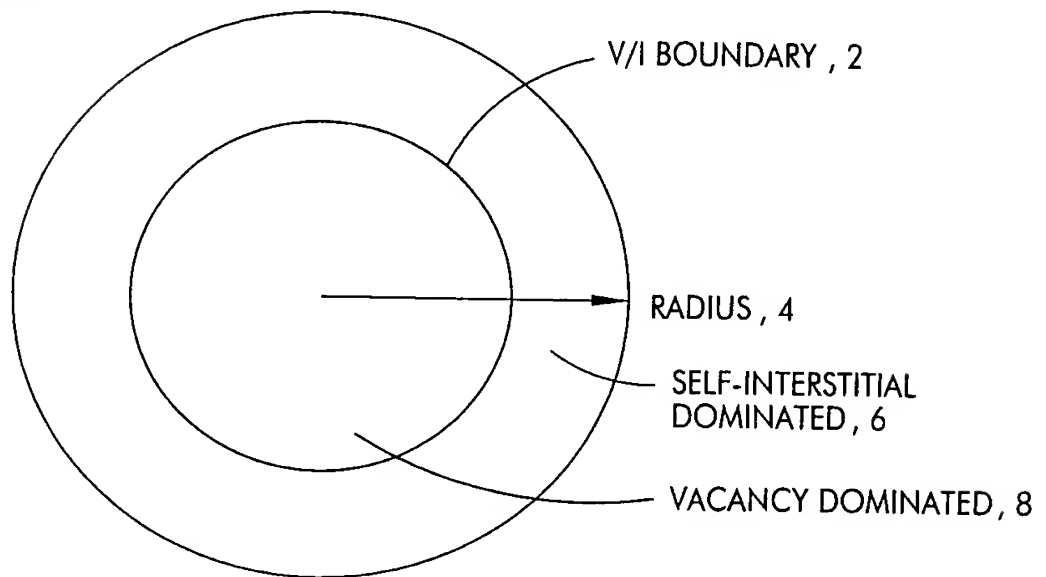
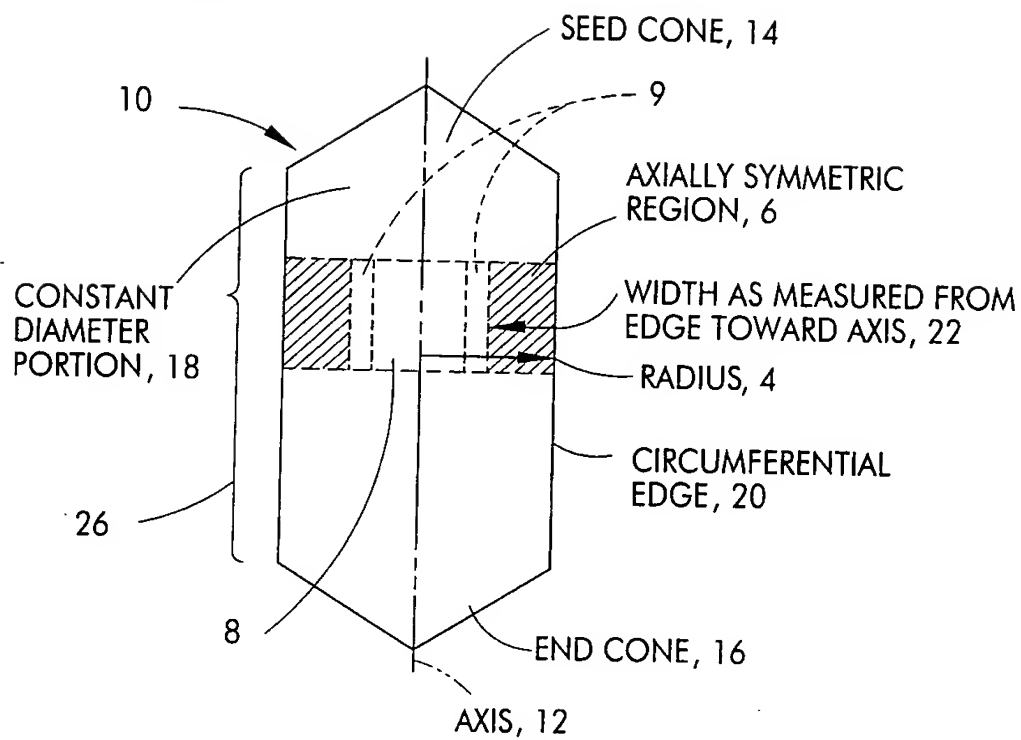


FIG.5



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FIG. 6

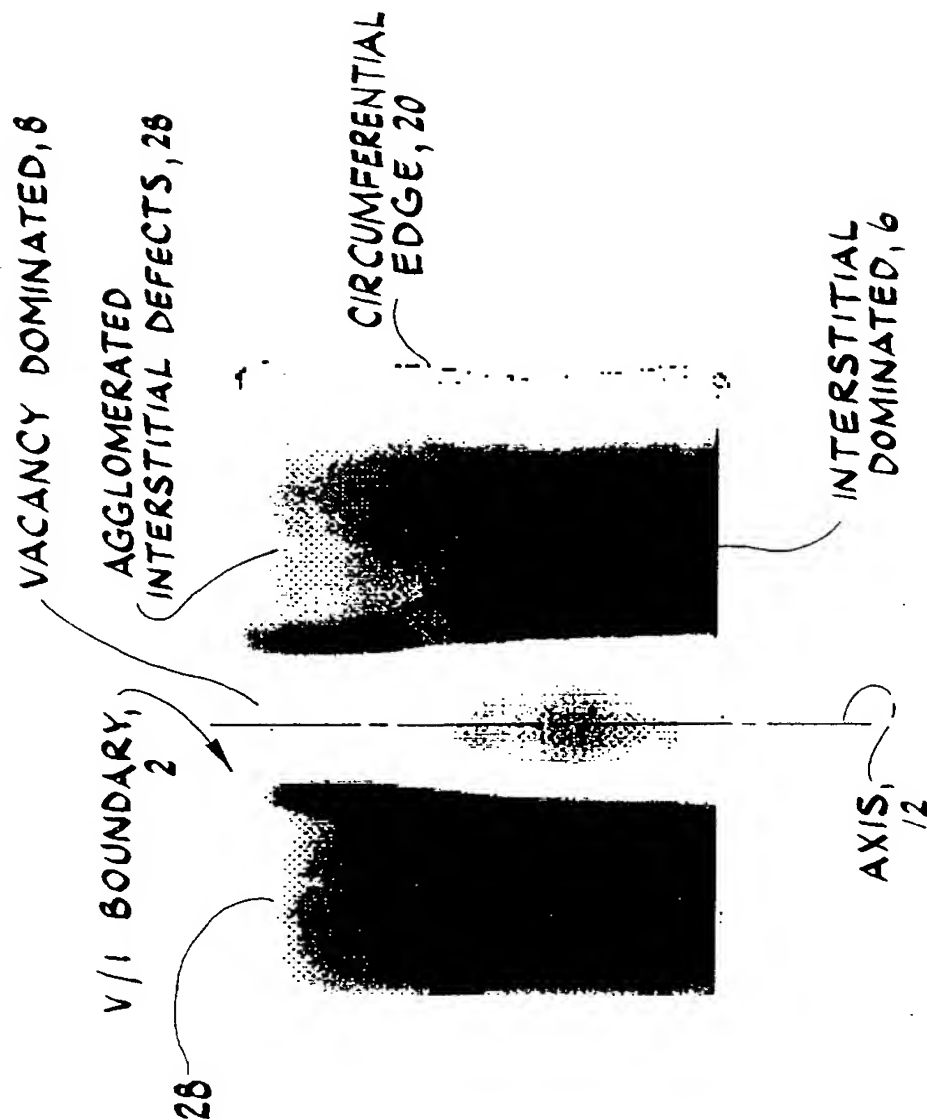


FIG. 7

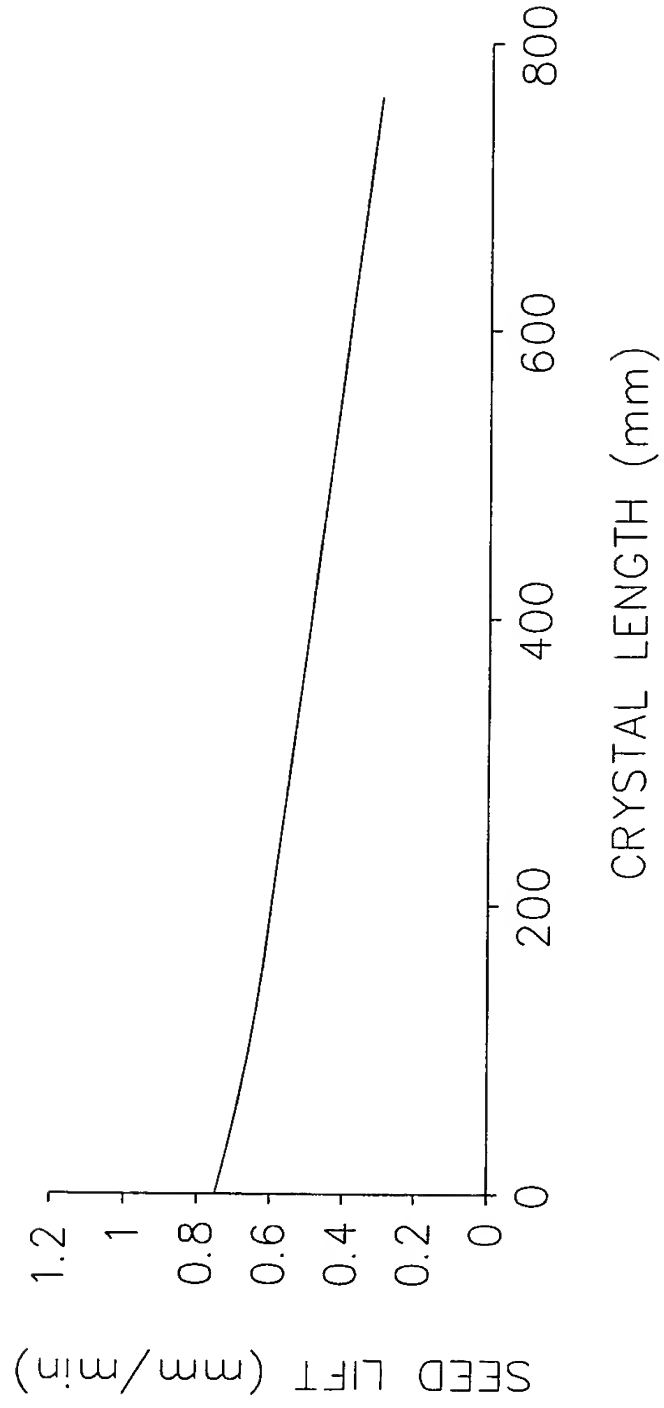


FIG. 8

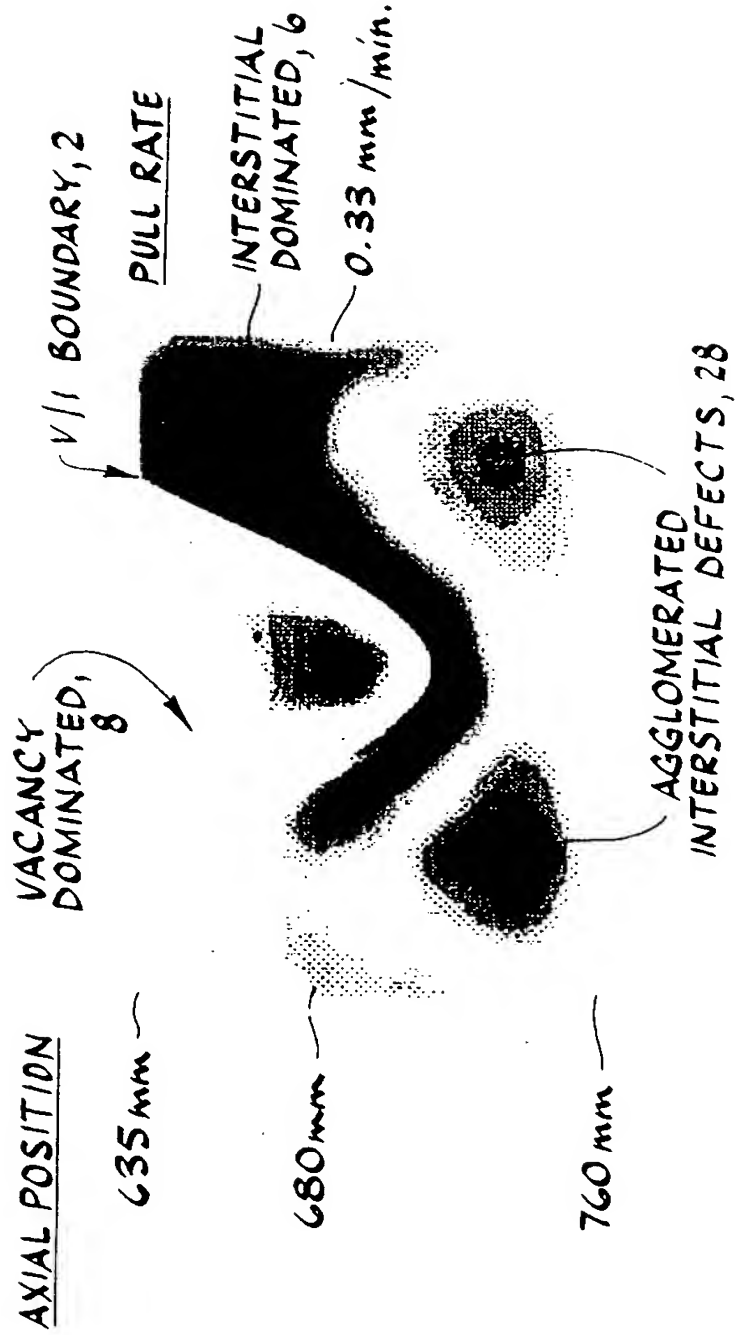


FIG. 9

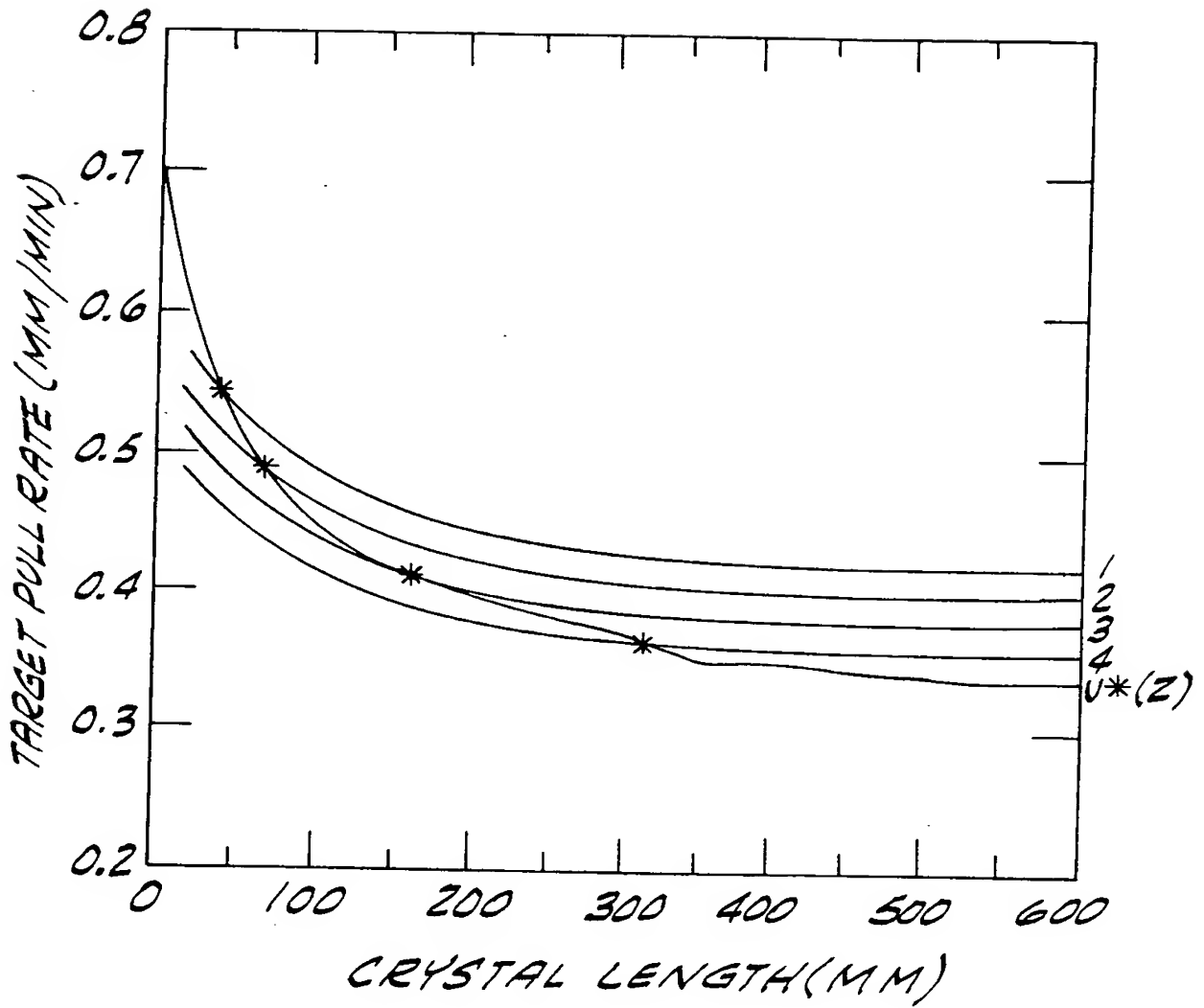


FIG. 10

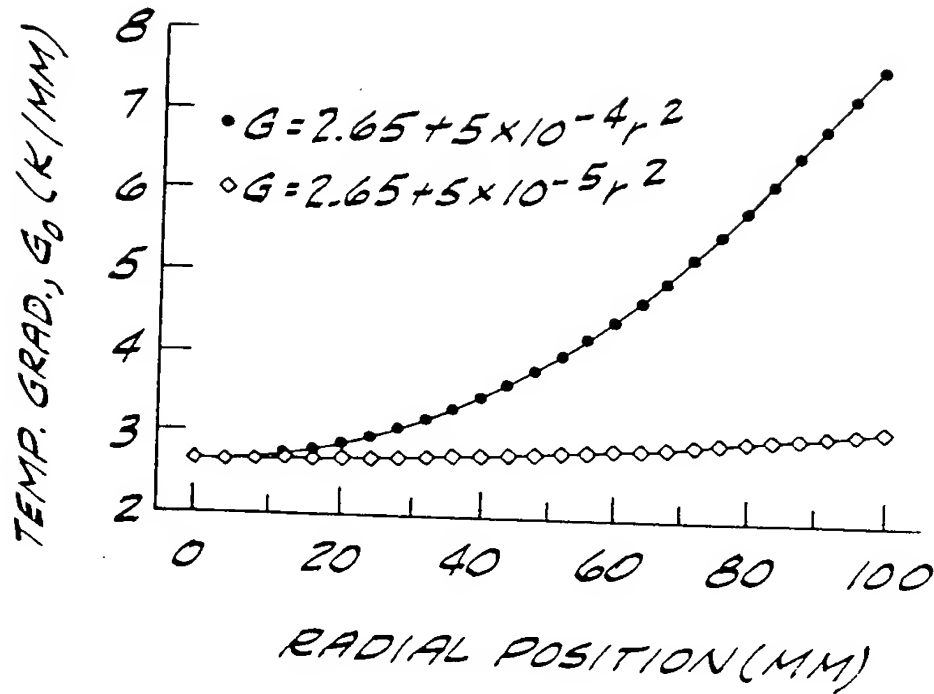


FIG. 11

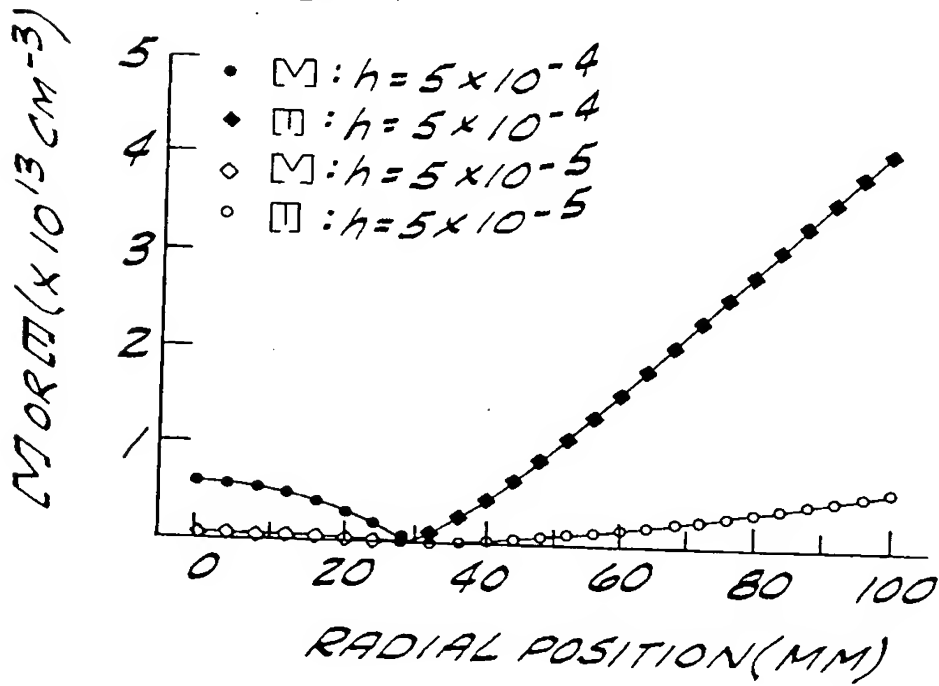


FIG. 12

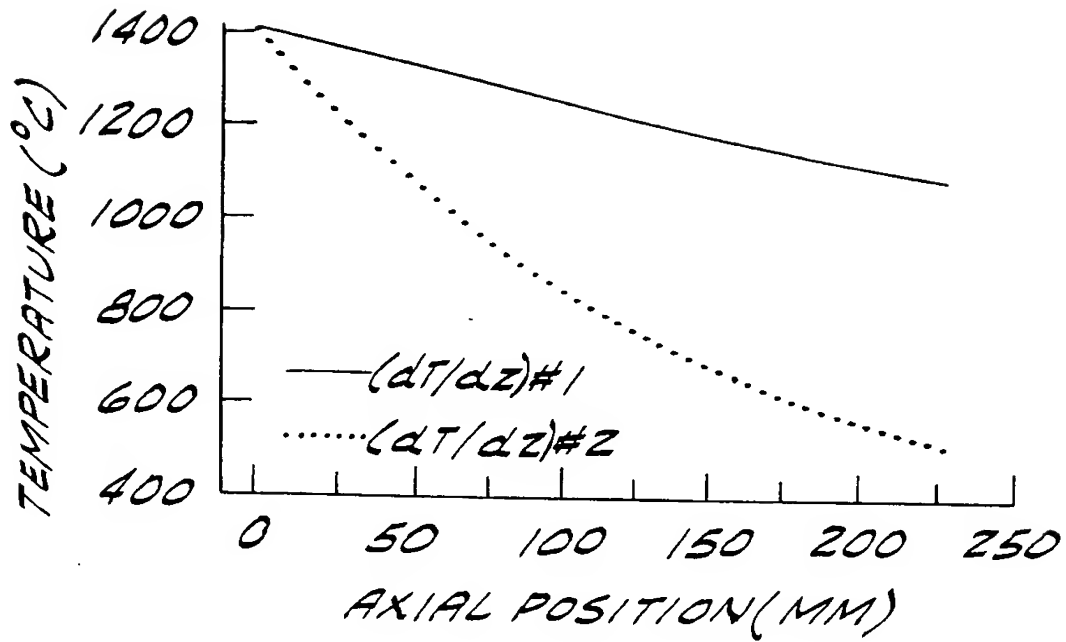


FIG. 13

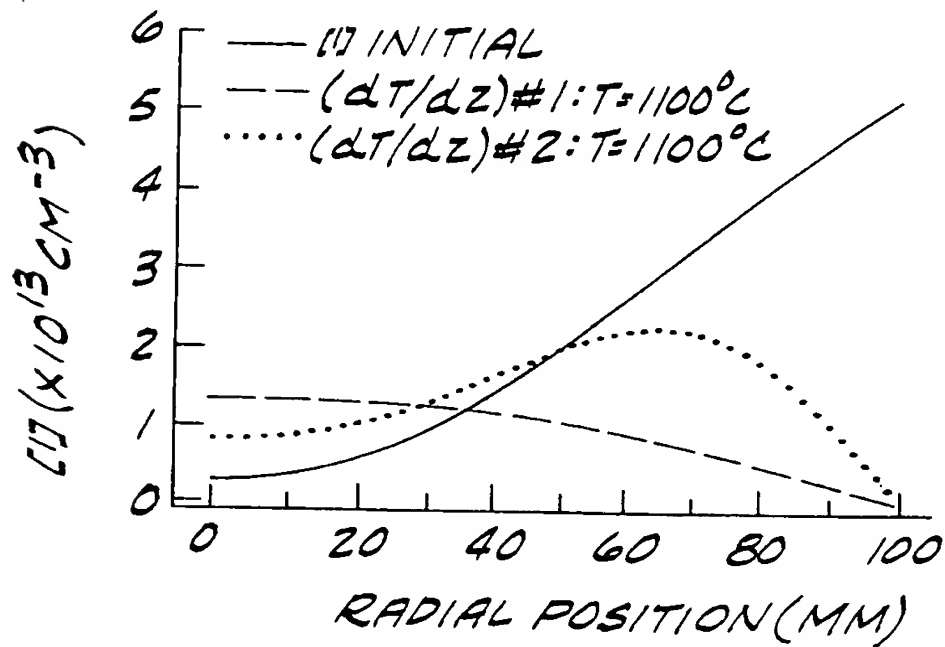


FIG. 14

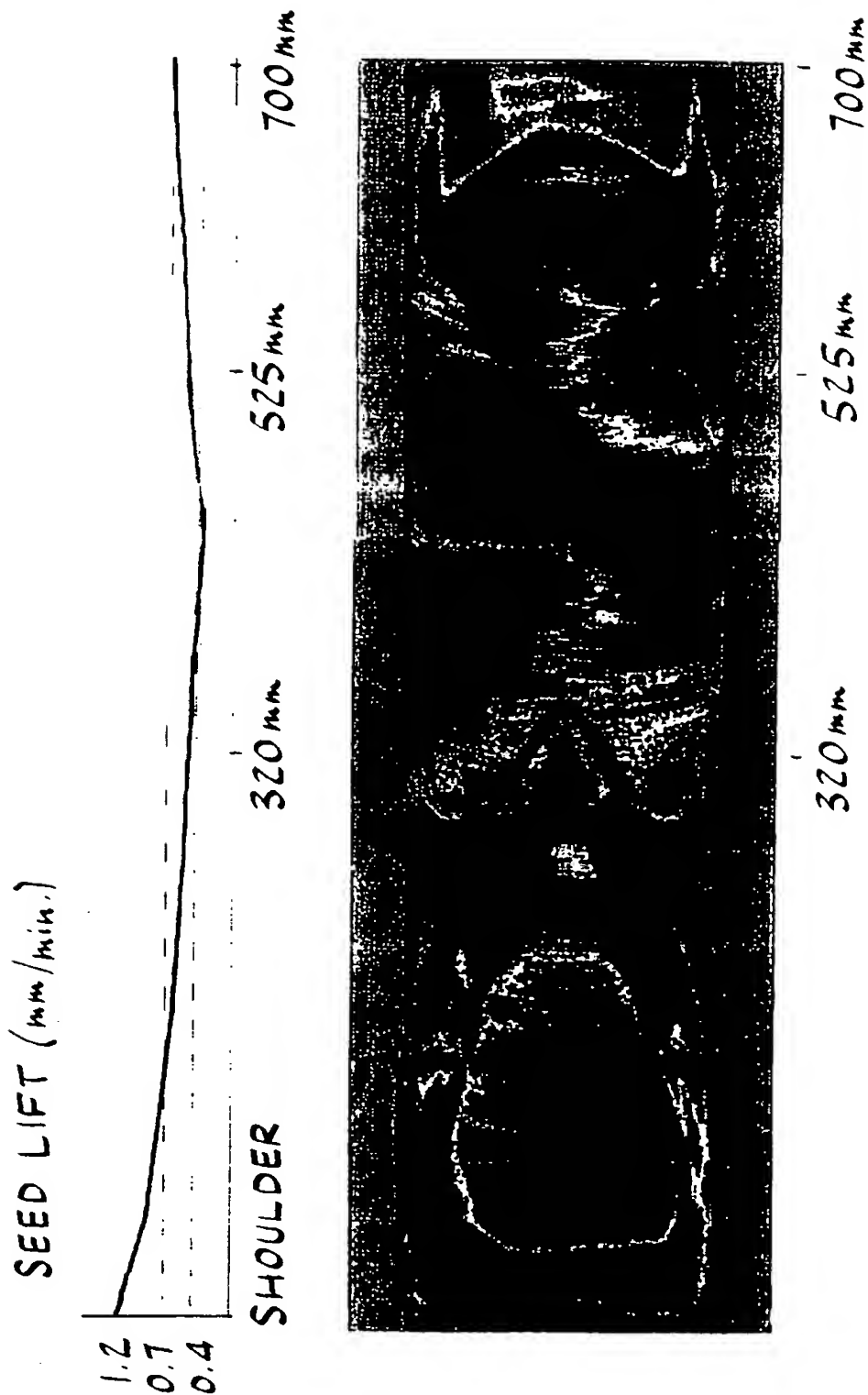
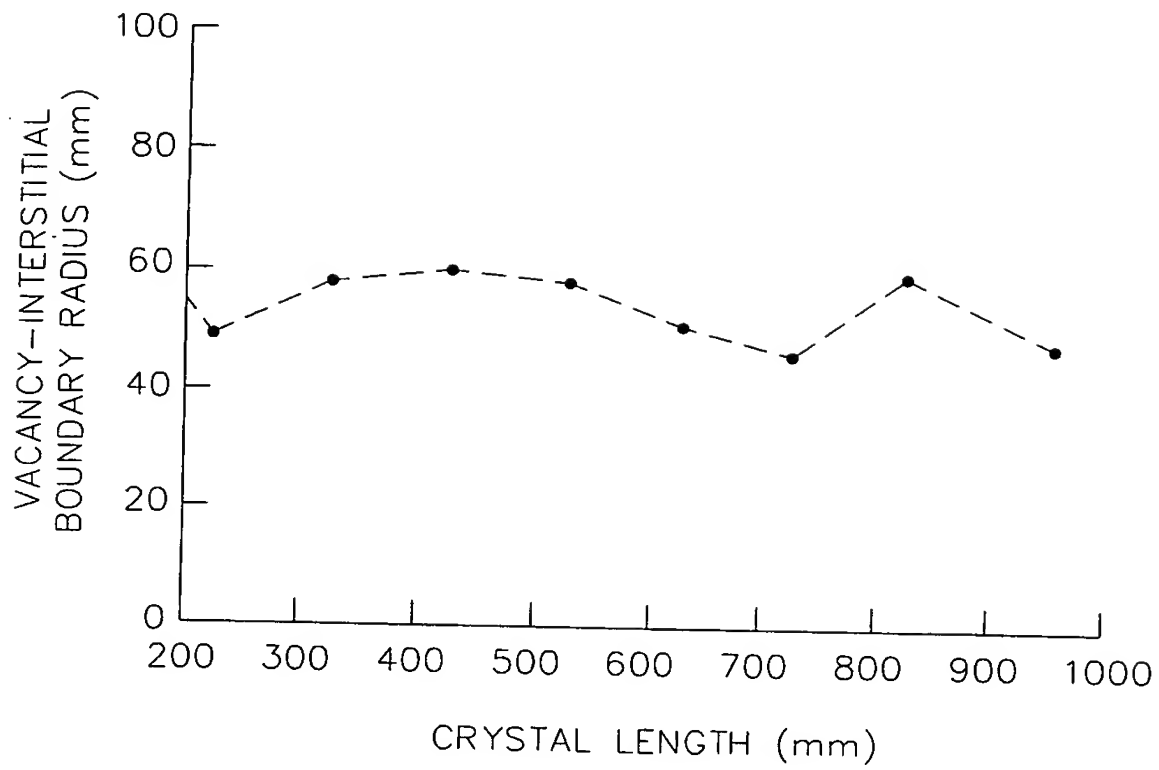
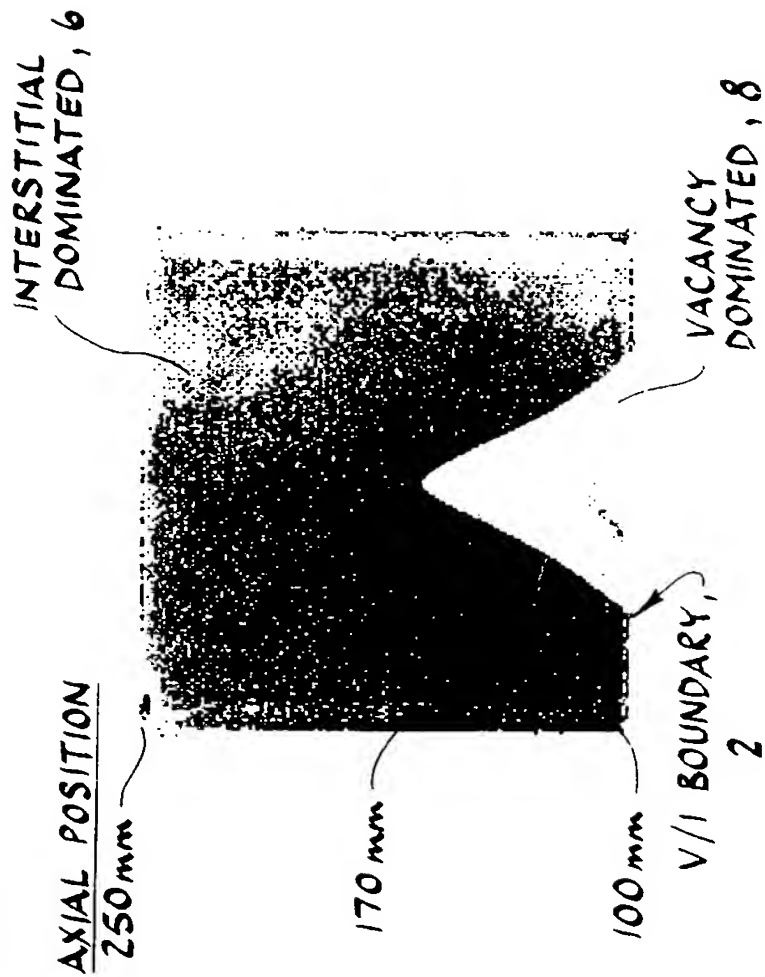


FIG. 15



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FIG. 16a





20170207 09:56:20

FIG. 16b

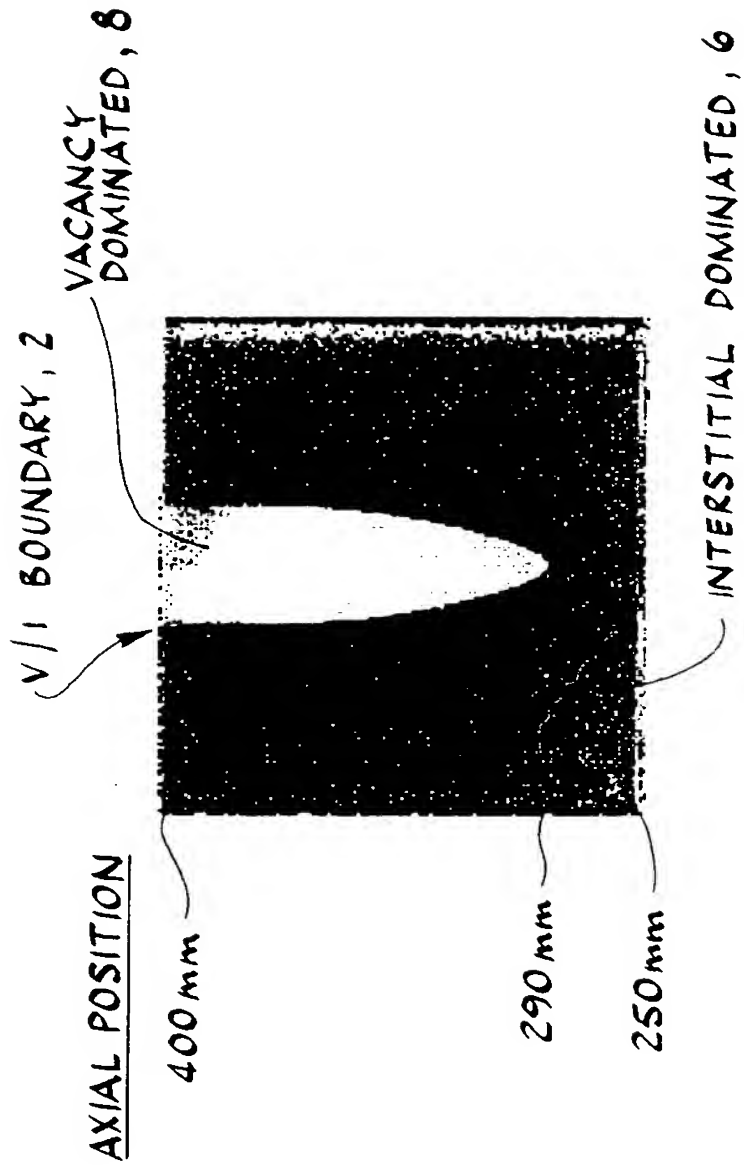


FIG.17

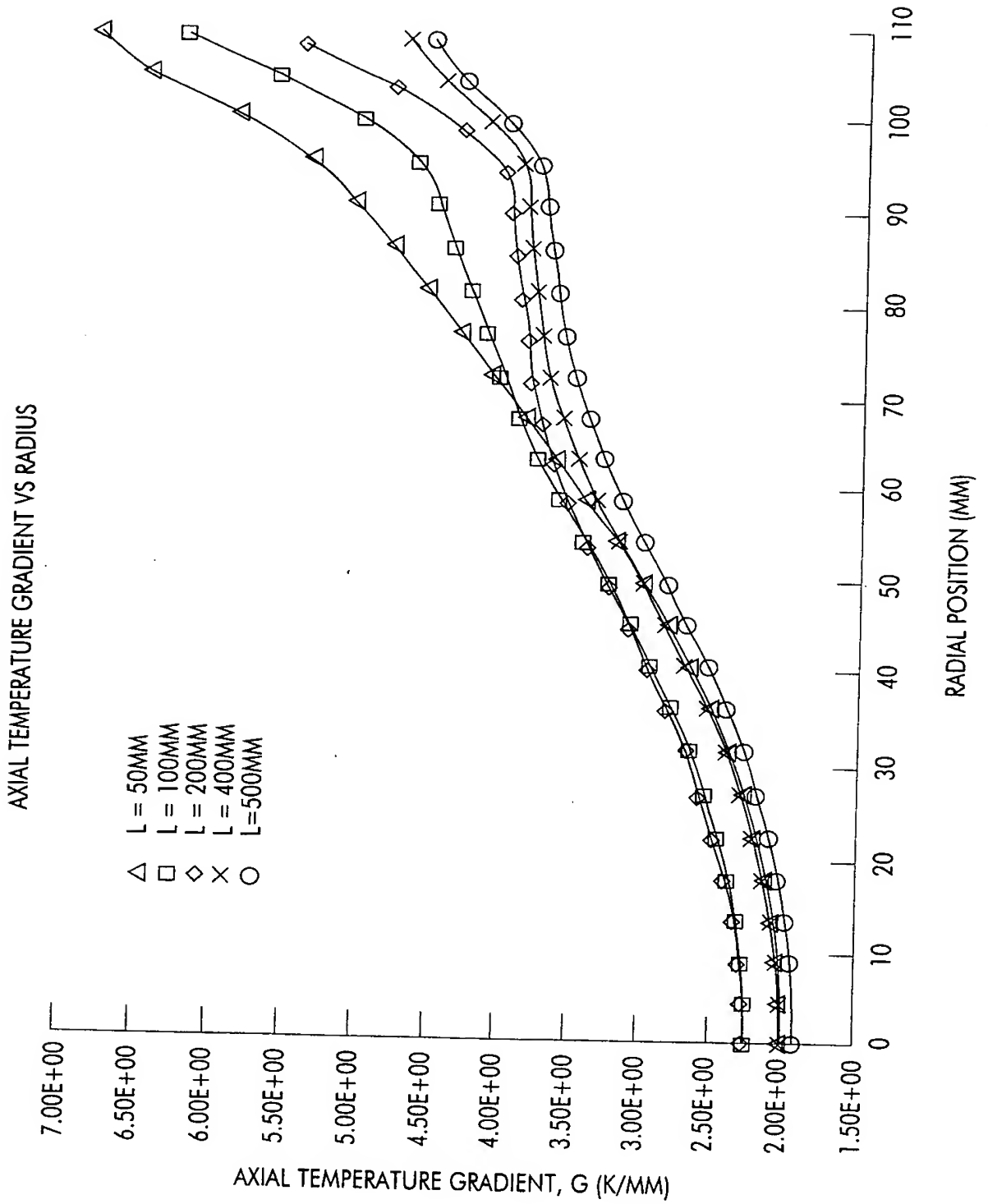


FIG.18

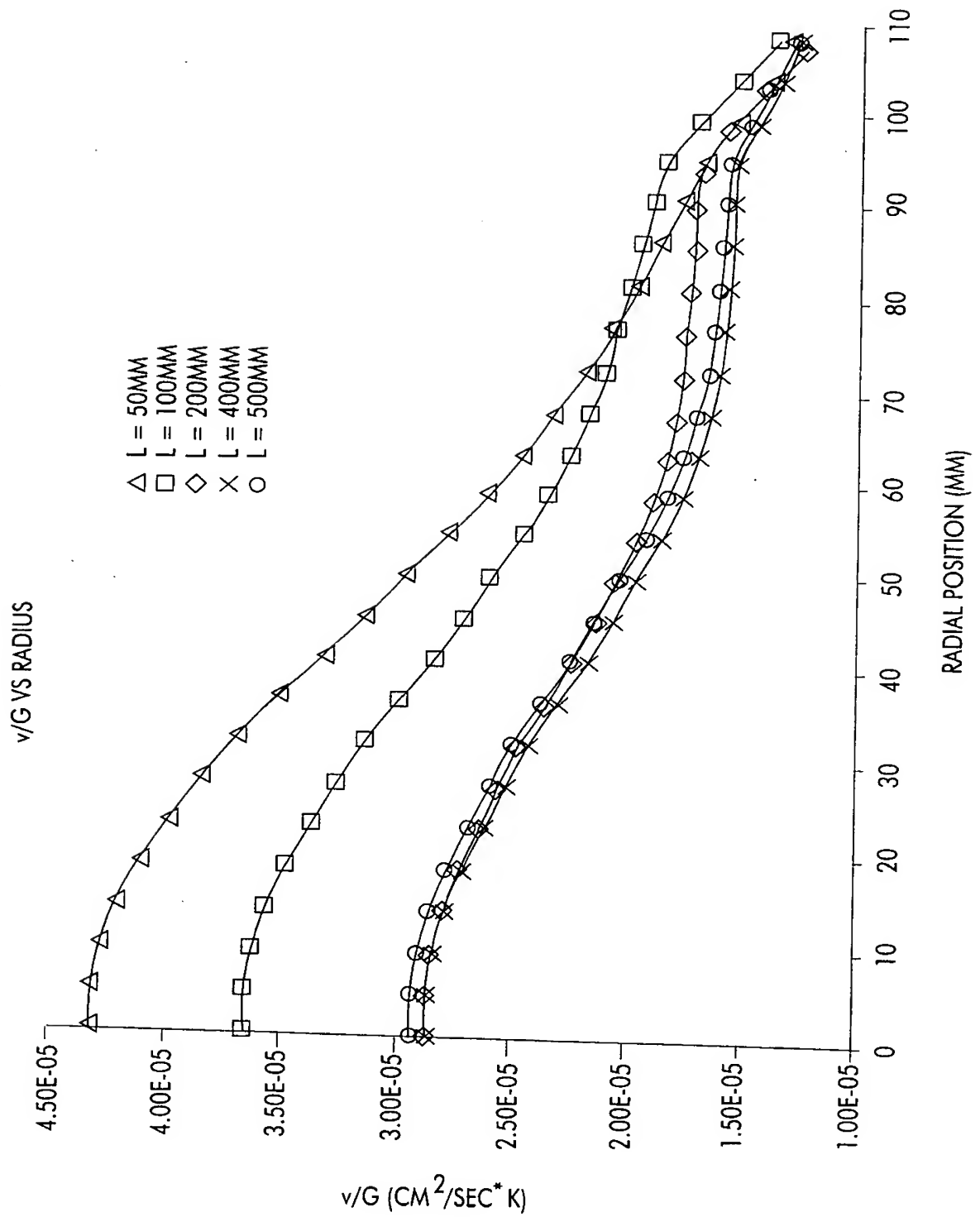


FIG. 20

AXIAL
POSITION

235 mm

V/I BOUNDARY, 2

VACANCY
DOMINATED, 8

PULL RATE

255 mm

- 0.4 mm/min.



350 mm

AGGLOMERATED
INTERSTITIAL DEFECTS, 28



FIG. 21

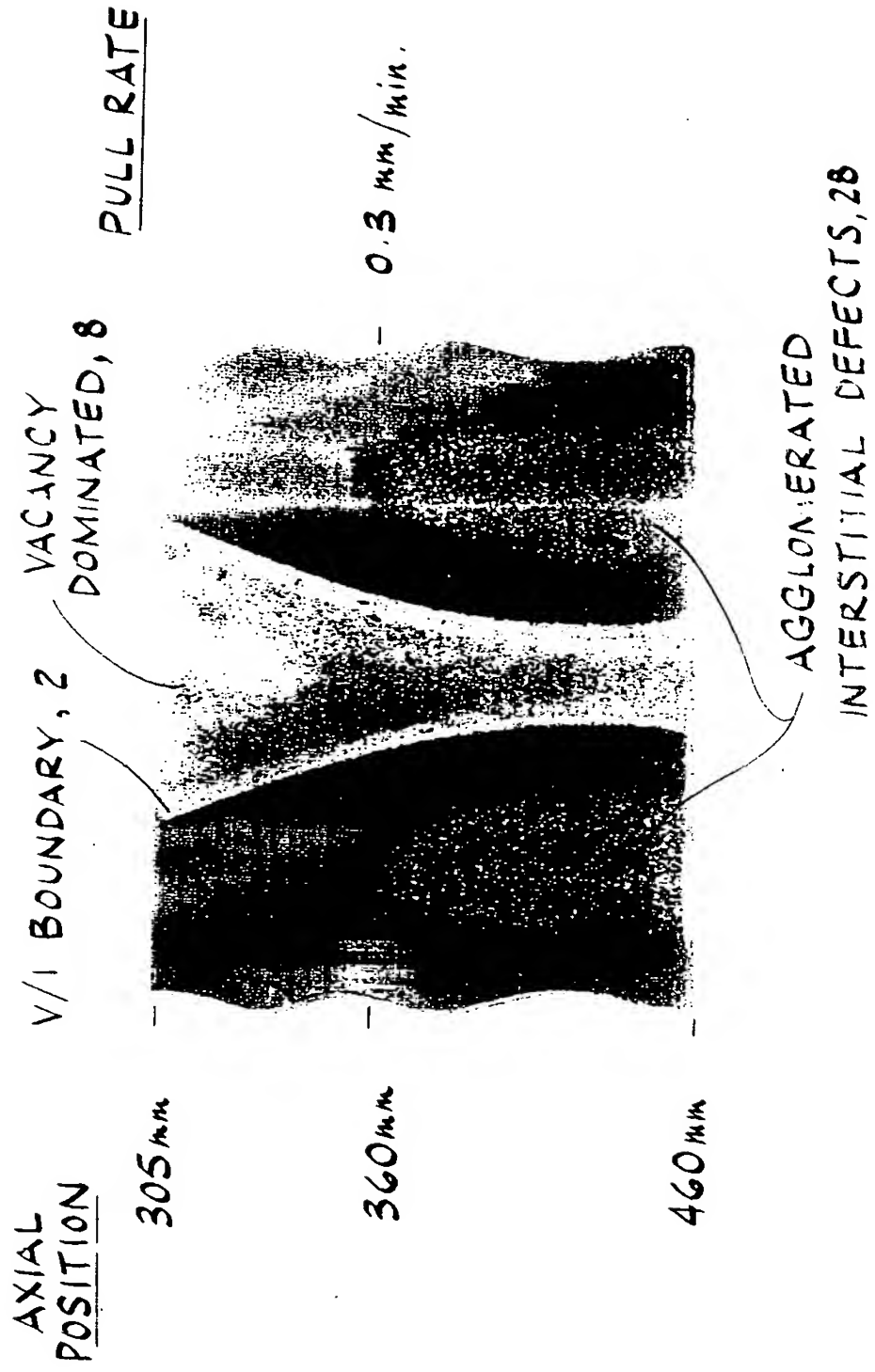
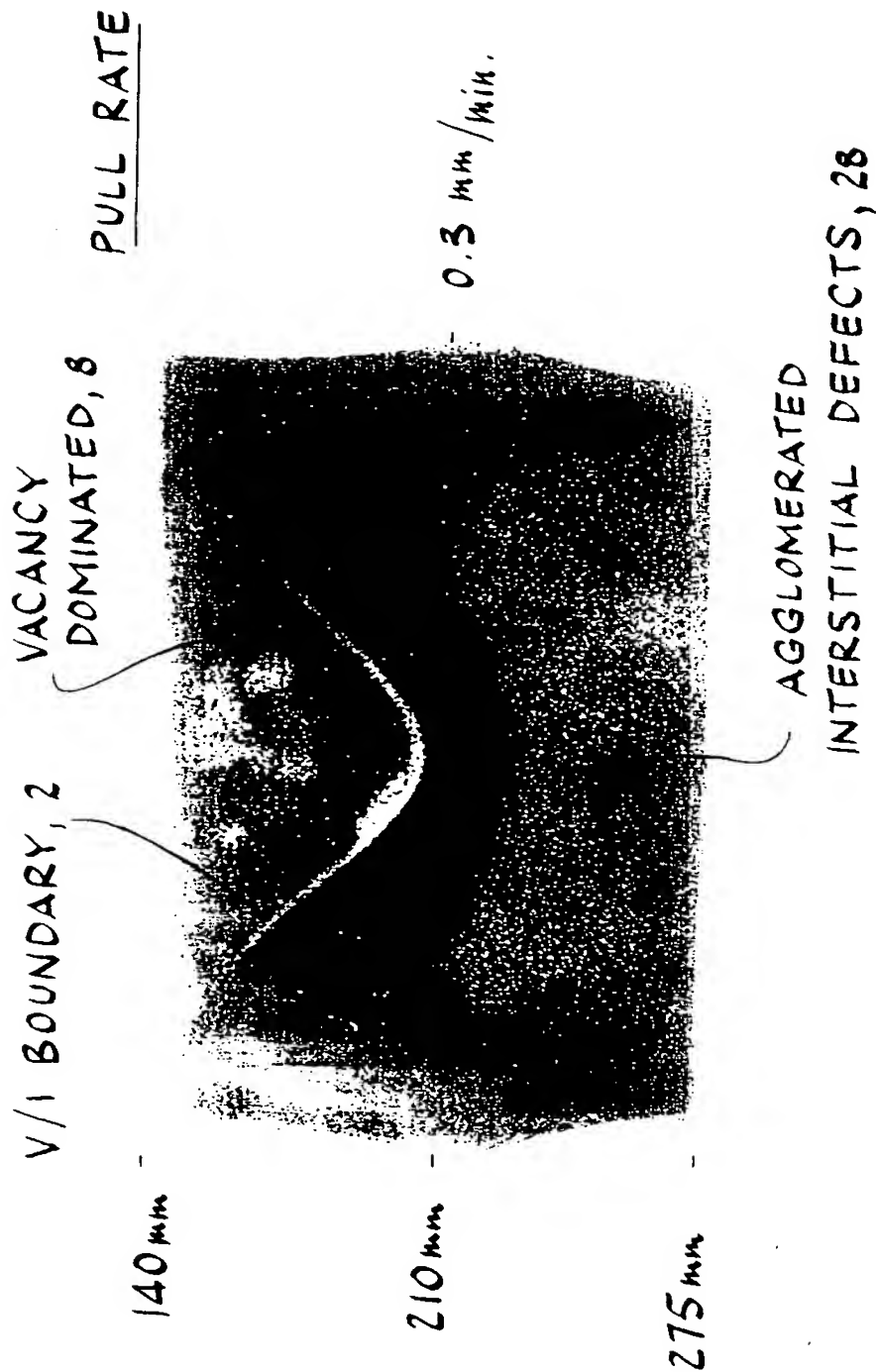


FIG. 22



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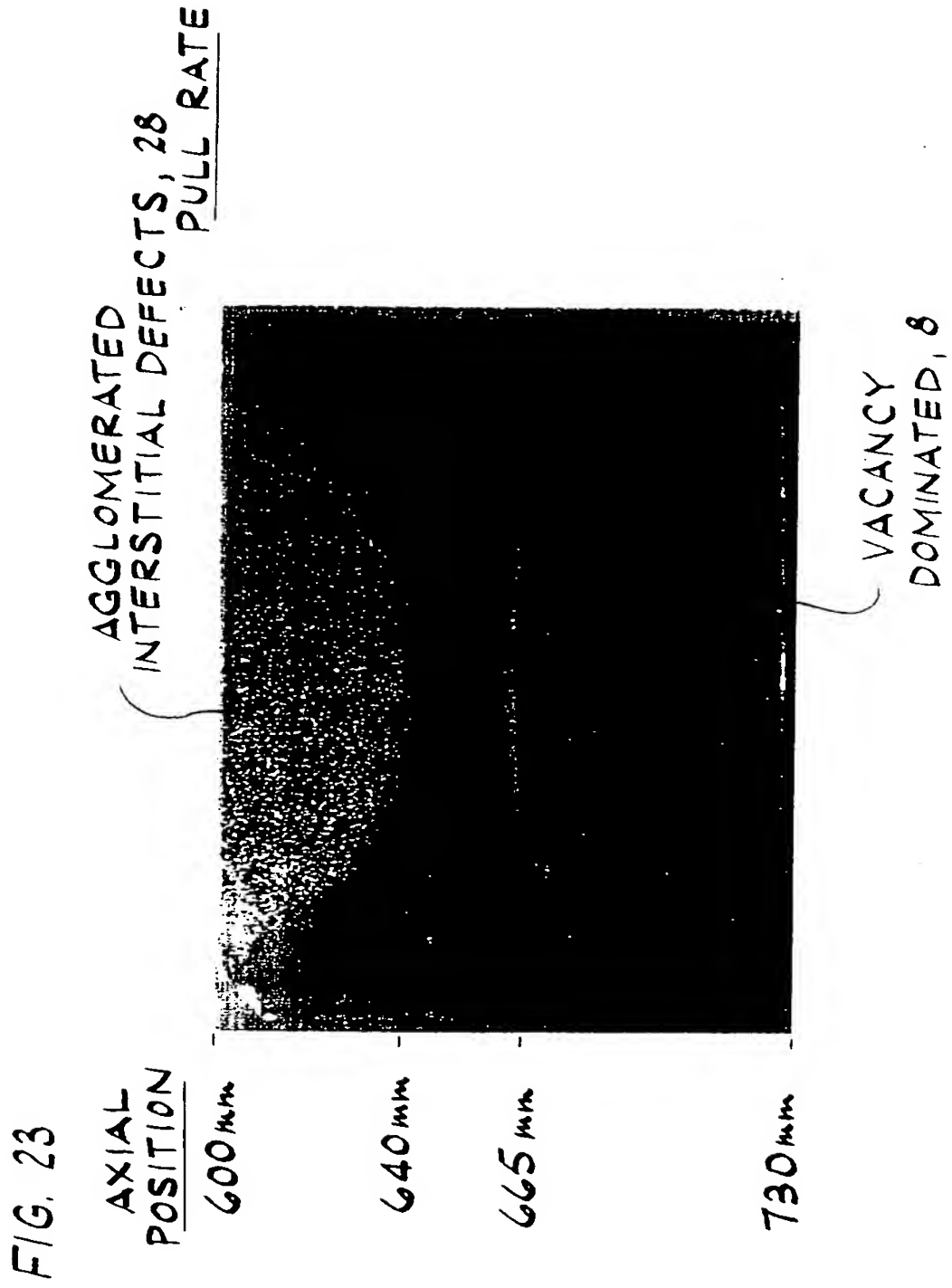


FIG.24

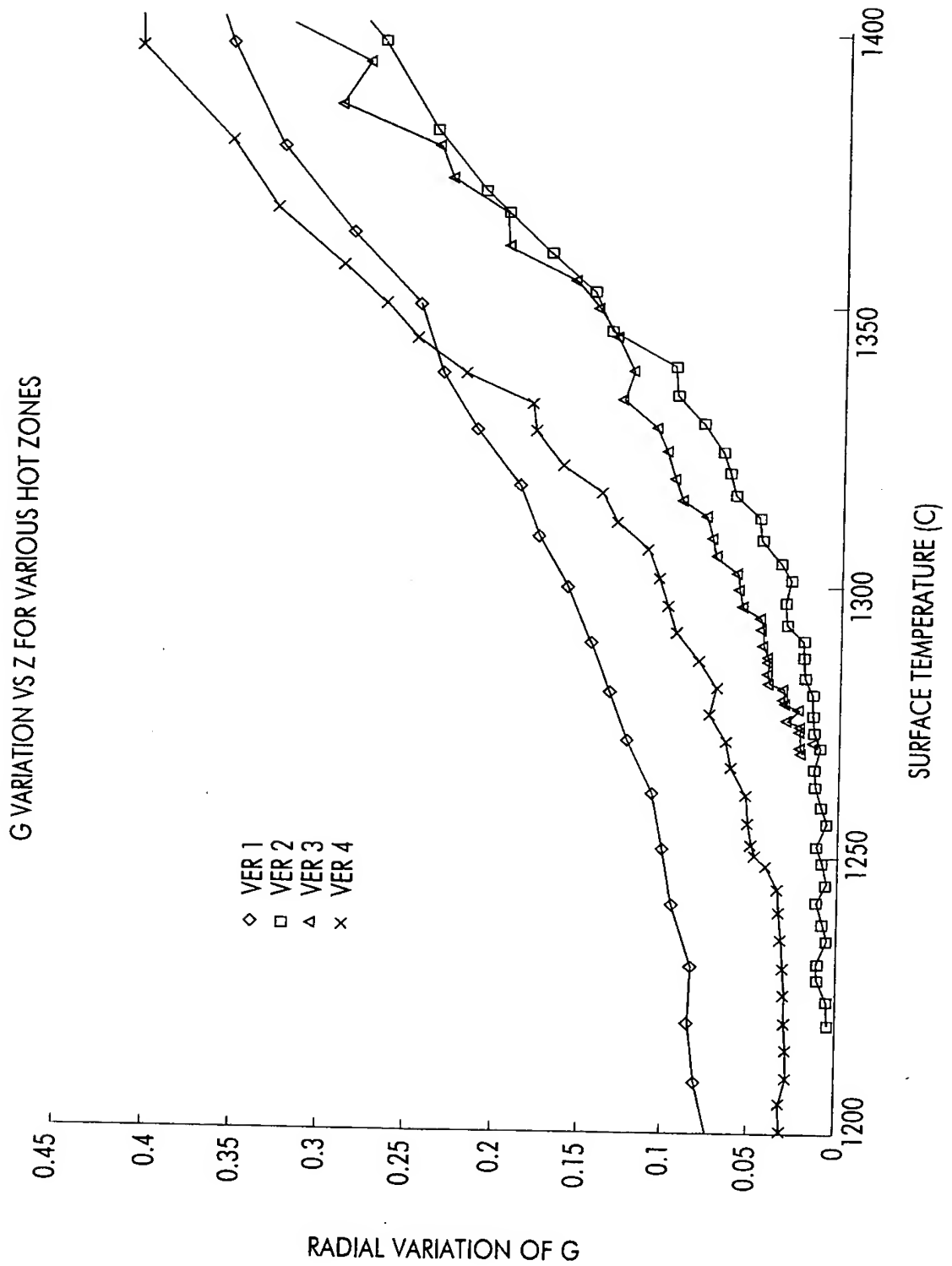




FIG.25

TEMPERATURE PROFILES FOR VARIOUS HOT ZONES

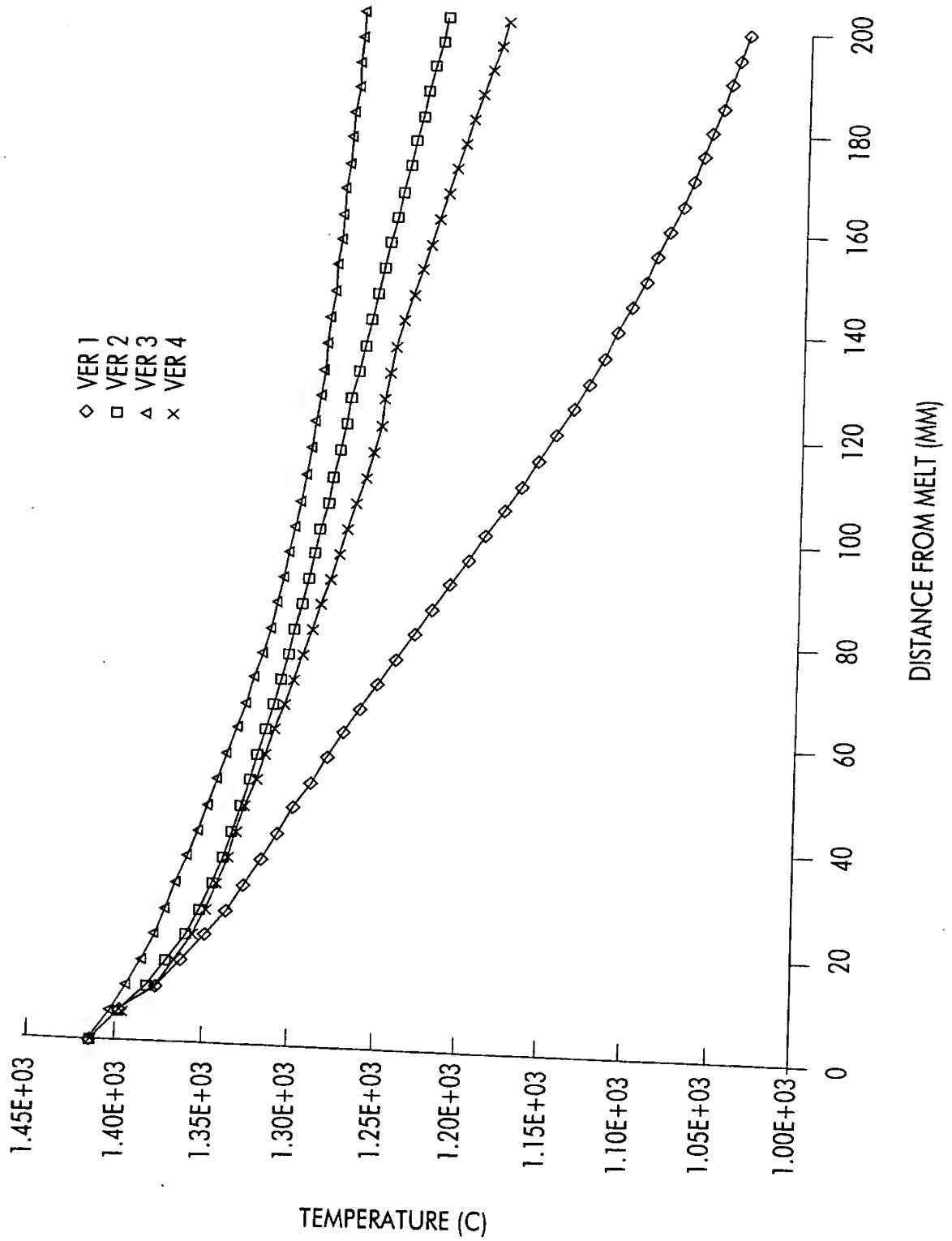




FIG. 26

LPD RADIAL DISTRIBUTION
BEFORE/AFTER Ar ANNEALING (LPDs > 0.09 μm)

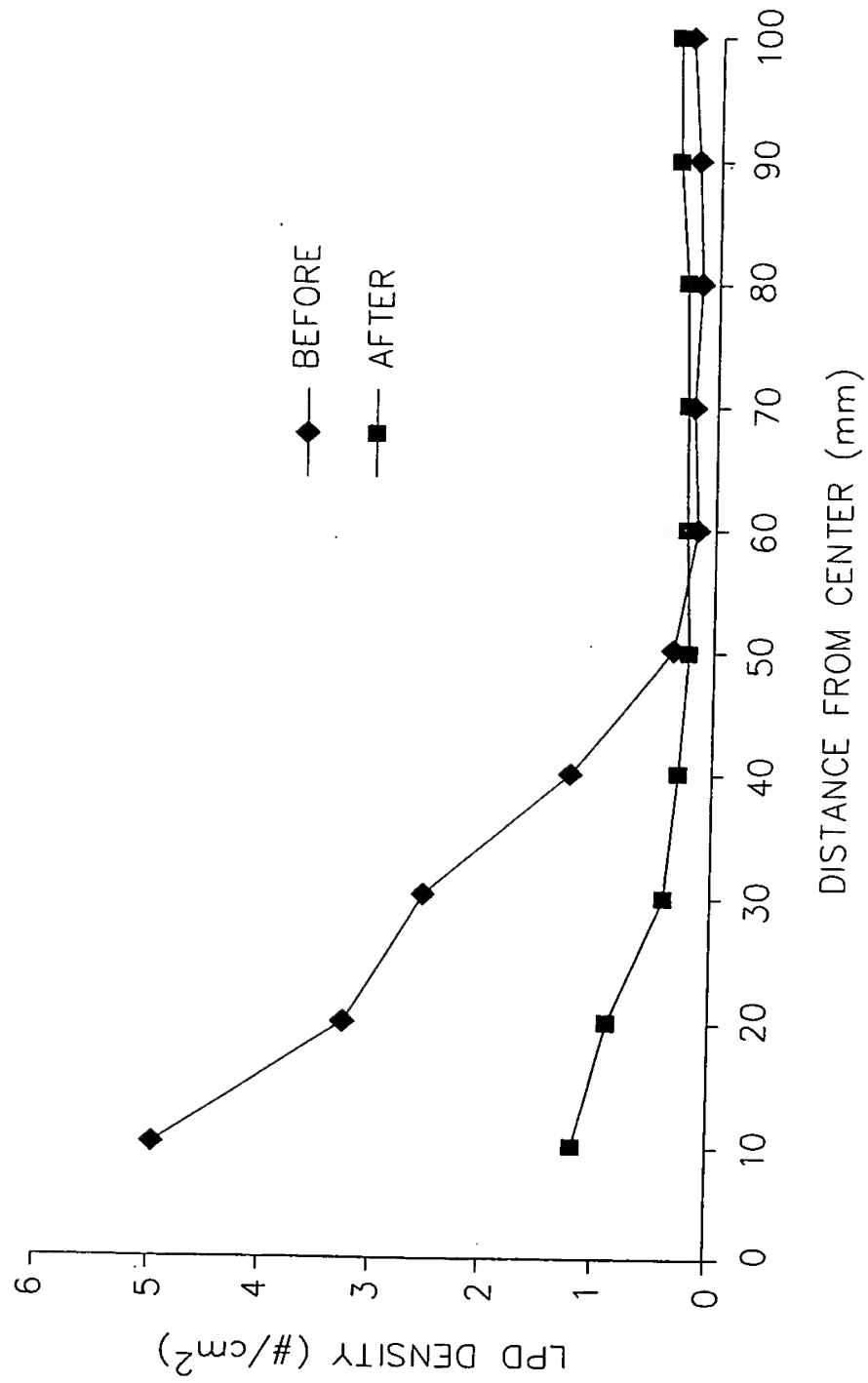


FIG. 27

LPD RADIAL DISTRIBUTION
(BEFORE Ar ANNEALING: 0.09-0.11 μm)

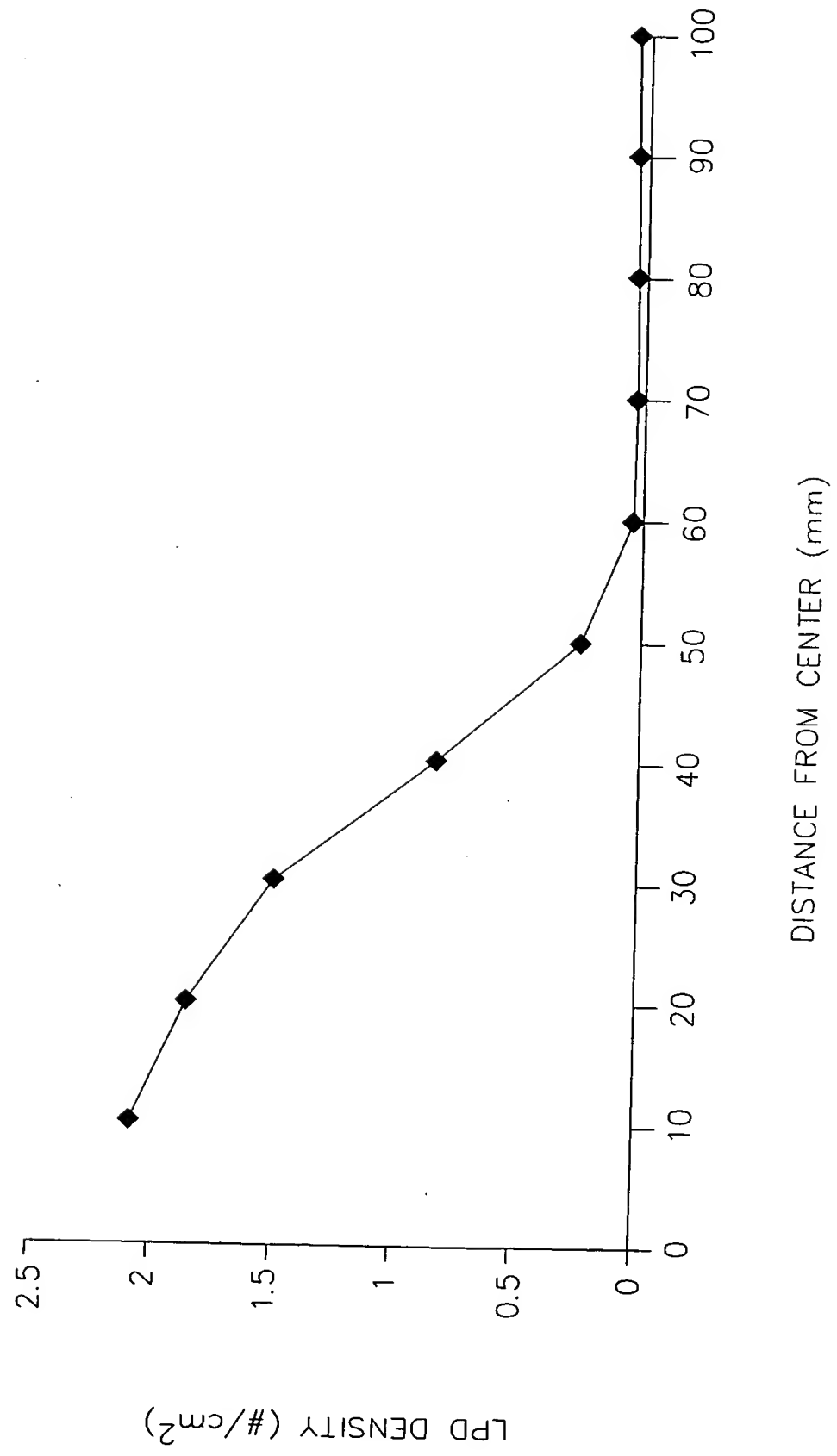


FIG. 28

LPD RADIAL DISTRIBUTION
(AFTER Ar ANNEALING: 0.09–0.11 μm)

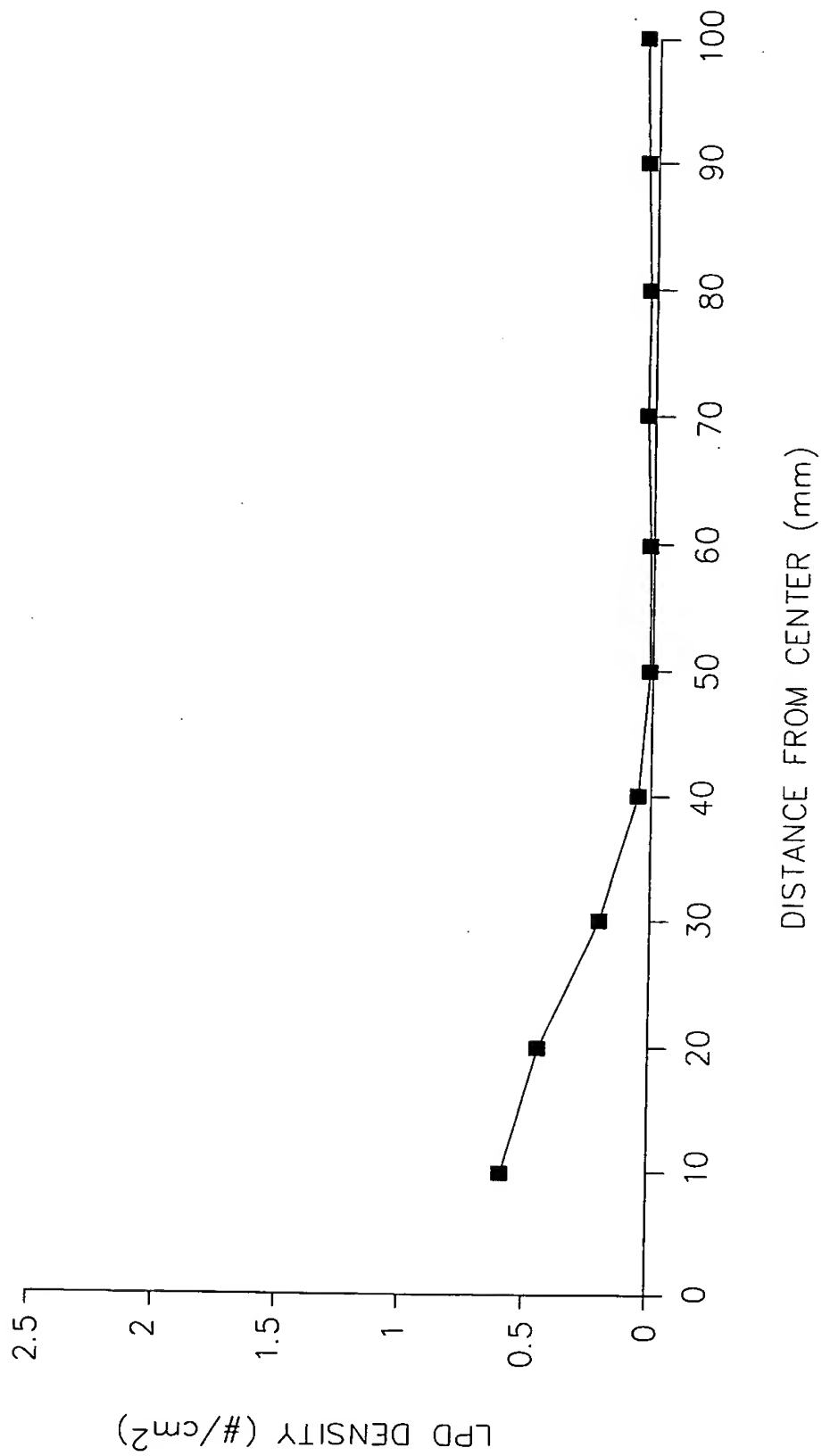


FIG. 29

LPD RADIAL DISTRIBUTION
(BEFORE: 0.11-0.13 μm)

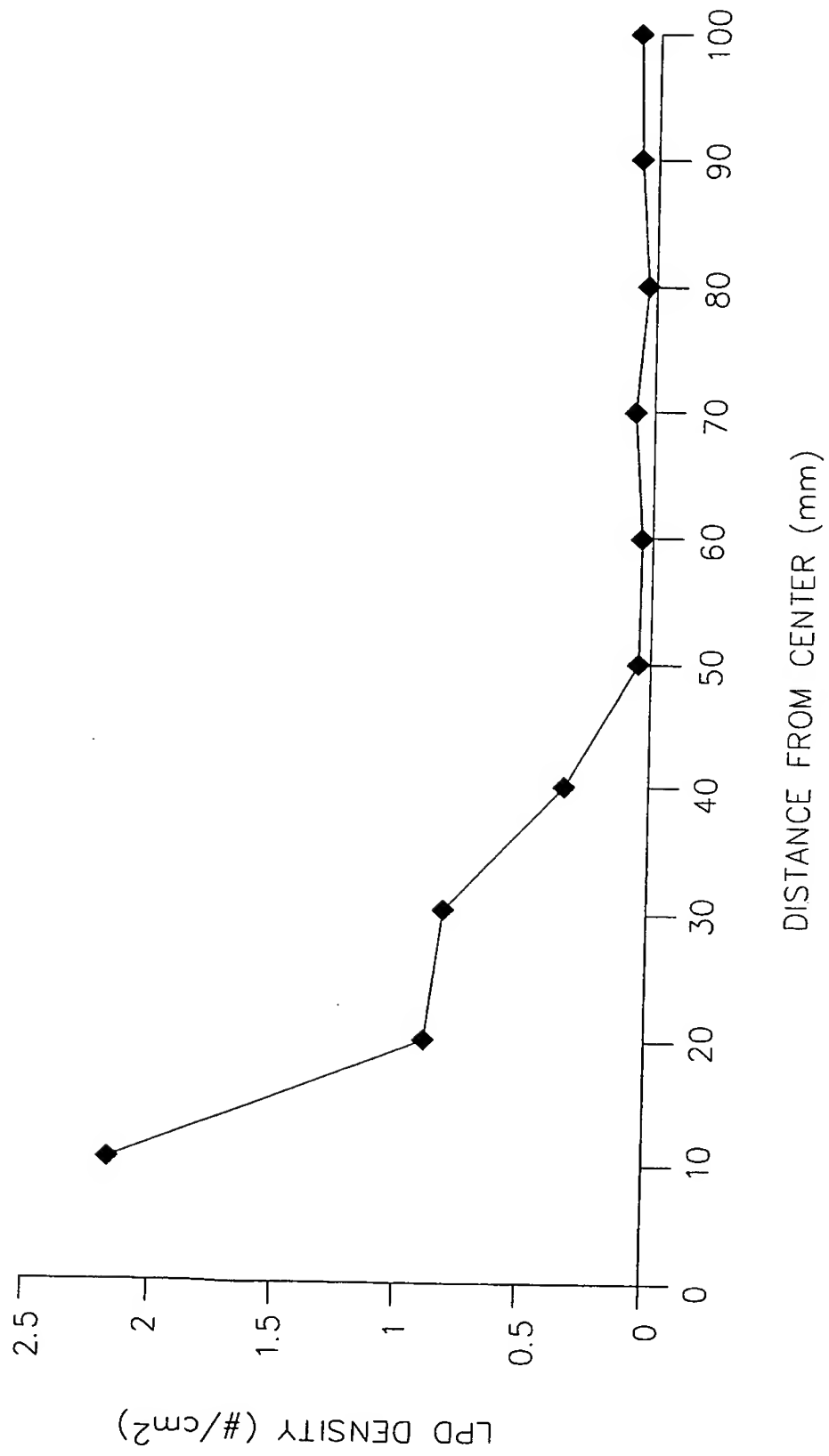




FIG. 30

LPD RADIAL DISTRIBUTION
(AFTER Ar ANNEALING: 0.11-0.13 μm)

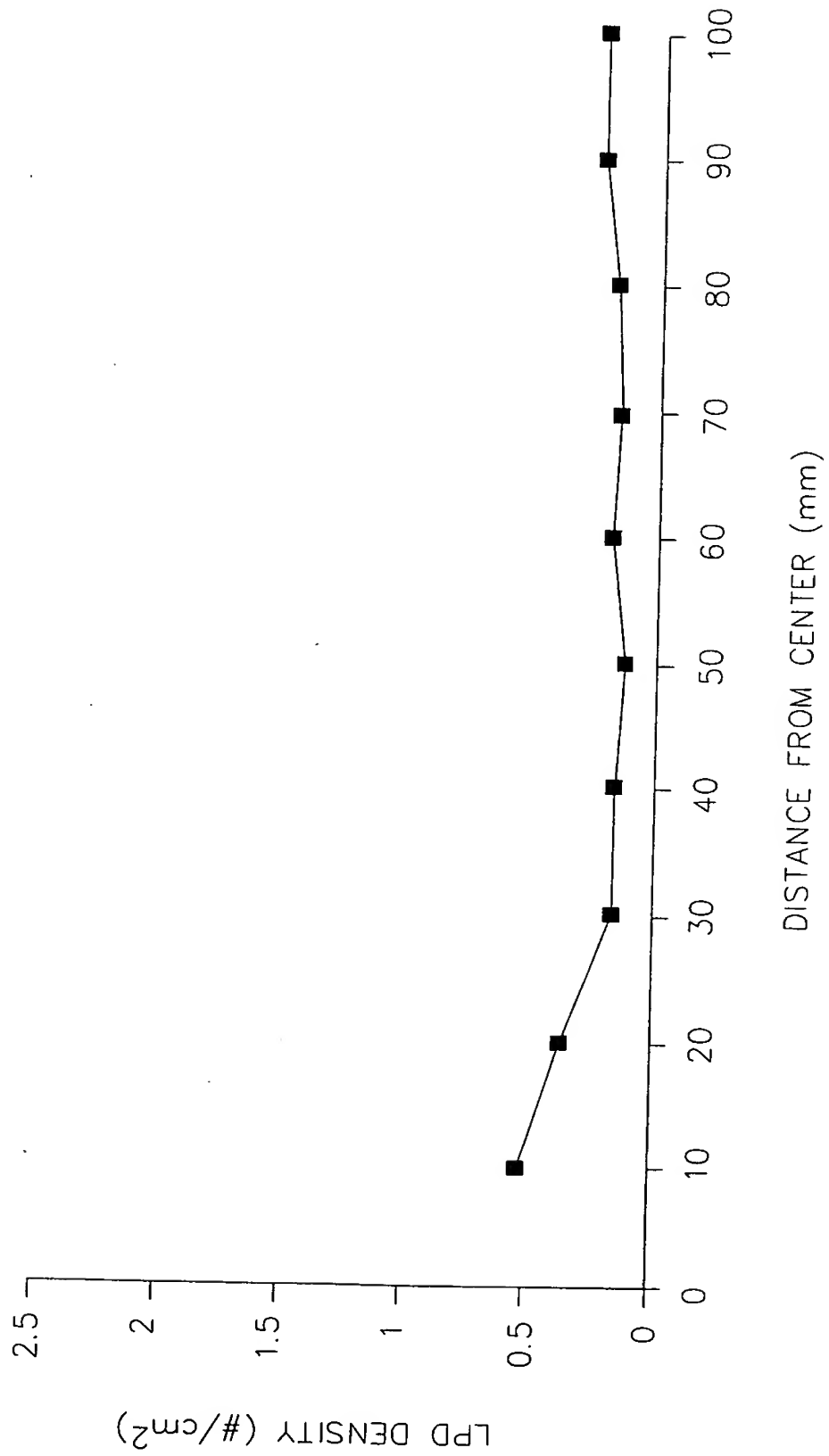




FIG. 31

LPD RADIAL DISTRIBUTION
(BEFORE: 0.13-0.15 μm)

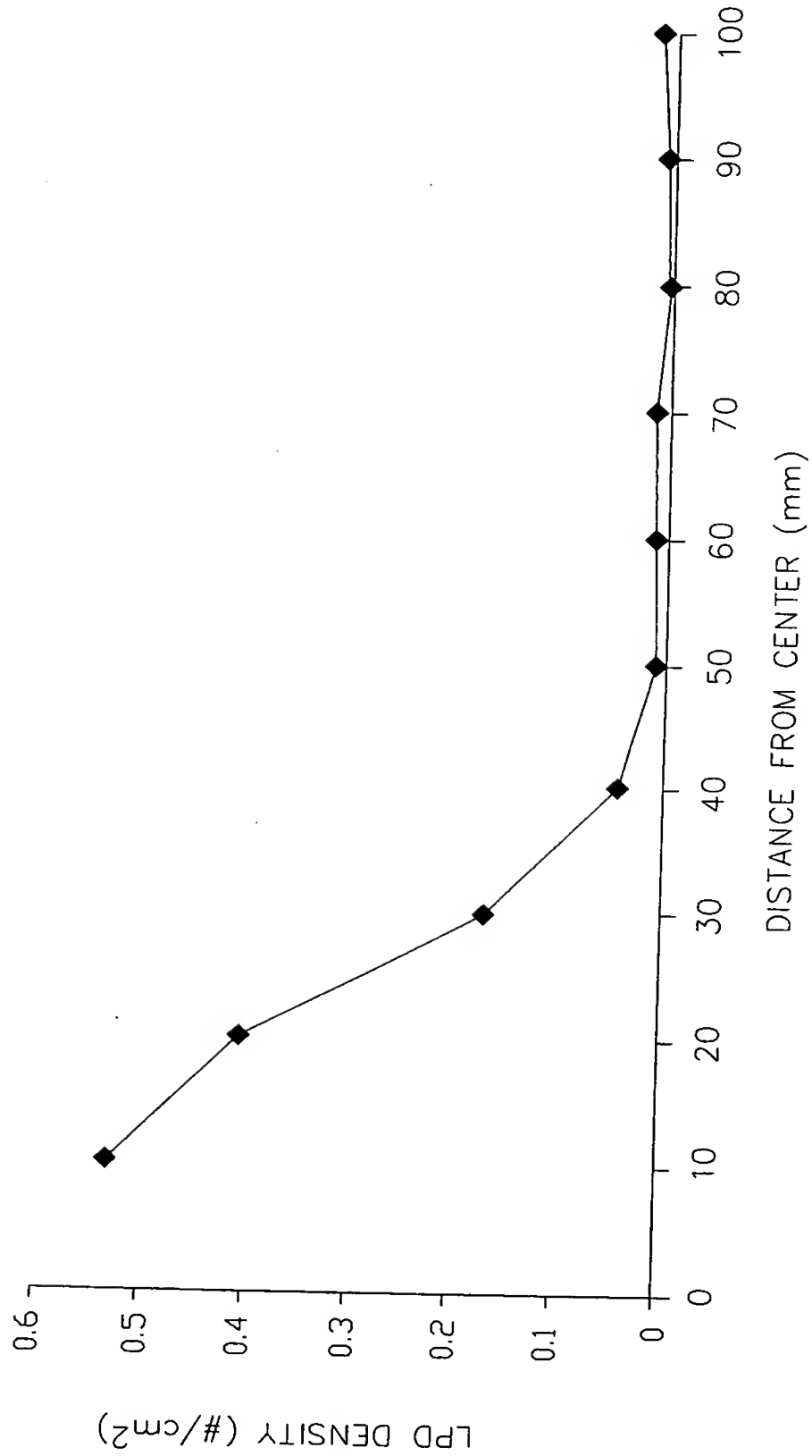


FIG. 32

LPD RADIAL DISTRIBUTION
(AFTER Ar ANNEALING: 0.13-0.15 μm)

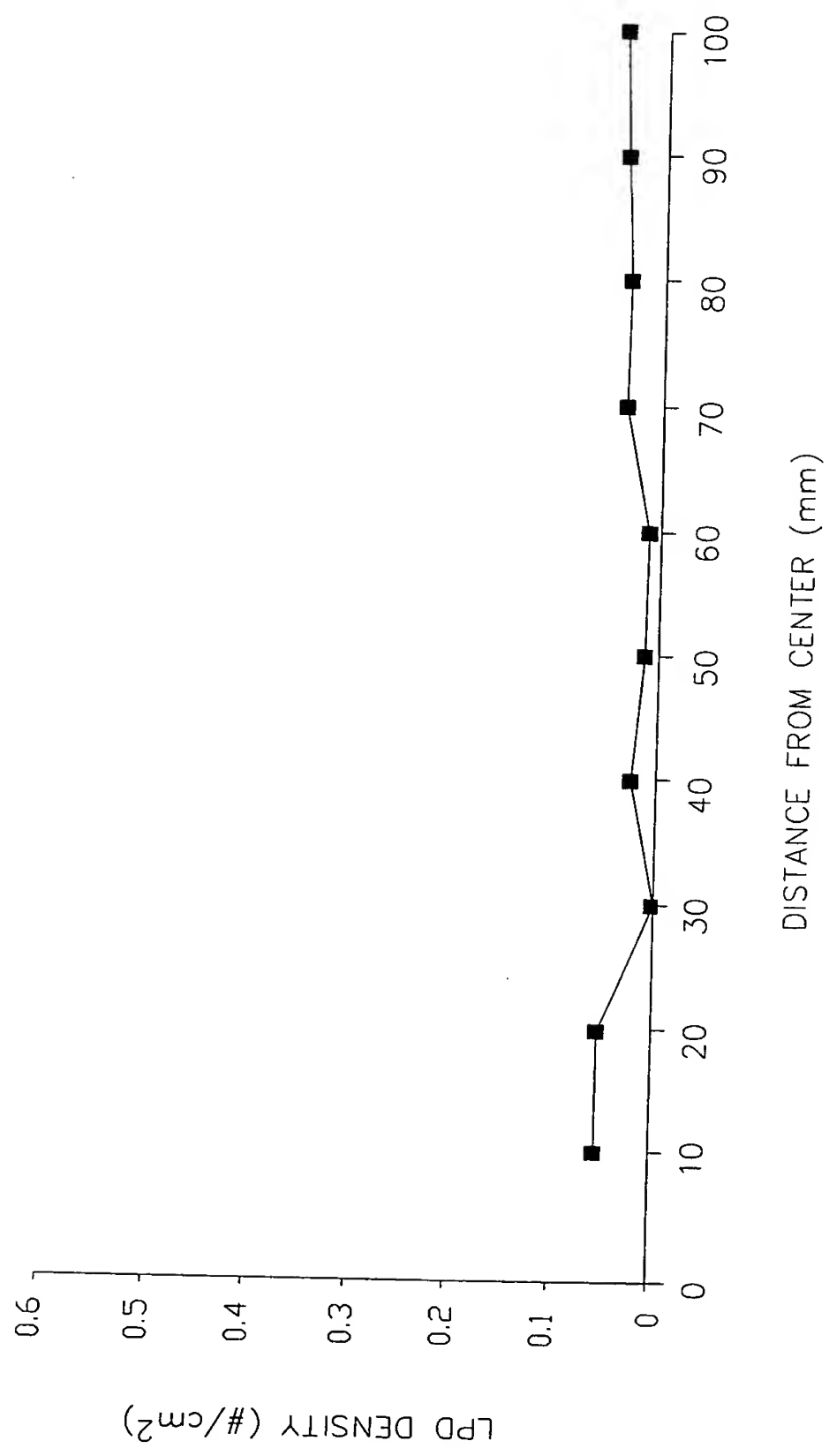


FIG. 33a

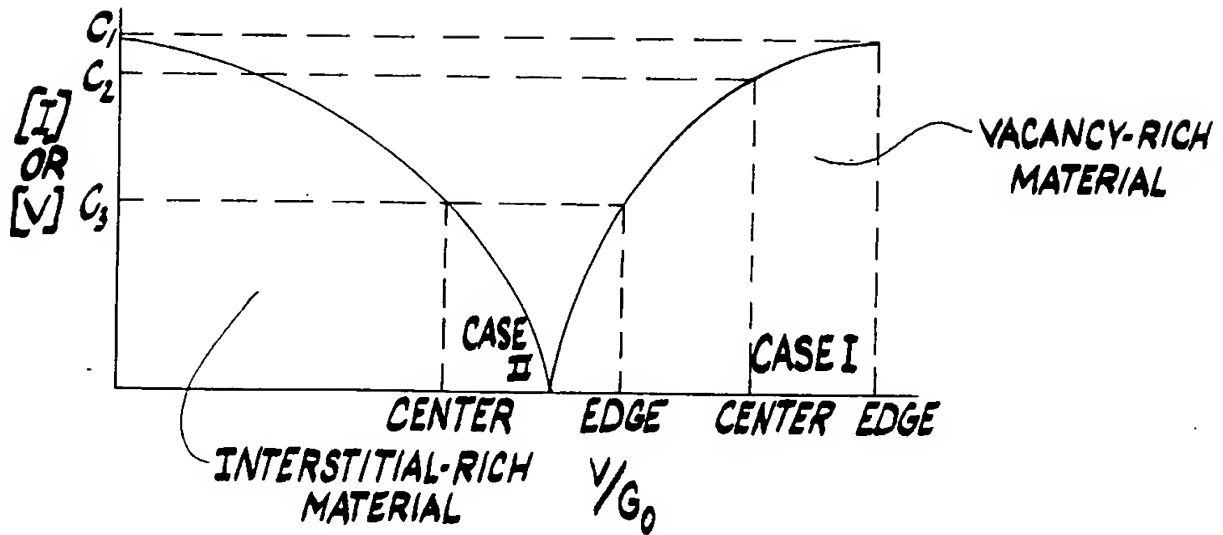


FIG. 33b

